



UNITED STATES DEPARTMENT OF COMMERCE

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EXAMINER

FIELDS, D

ART UNIT PAPER NUMBER

3305

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DATE MAILED: 05/30/97

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 11/8/96☐ This action is FINAL.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-22 is/are pending in the application.
Of the above, claim(s) is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1-12 is/are rejected.
- ☒ Claim(s) 13-22 is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number)
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received:

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of Reference Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s).
- ☐ Interview Summary, PTO-413
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

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DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 1 is not labeled. Correction is required.

Specification

2. The disclosure is queried regarding the manner of coupling transducer 22 to specimen 24 and the mode of display insofar as the 'image' is of an in vitro slab of tissue having little depth dimension with respect to the transducer.

Applicants are requested to provide a copy of the Christopher thesis as mentioned on page 8 of the specification in order that its scope of disclosure in relation to the claims may be evaluated with regards to 35 U.S.C. 102(b), public knowledge portion of the statute, insofar as the brief, page 8, specification characterization appears to suggest teaching of obtaining harmonic imaging data for clinical application.

Claim Rejections - 35 USC § 112

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 1, the preamble should read "A method of imaging a sample comprising the steps of:"

Claims 1 and 12 recite the limitation "signal" in line 5 of claim 1 and line 6 of claim 12.

There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Monaghan '683. Monaghan discloses generating an ultrasonic signal comprising insonating the tissue with ultrasonic energy during a first time period in the absence of a contrast agent in the tissue and during a second time period in the presence of a contrast agent in the tissue (see col. 2, lines 25-31), receiving any signal reflected by said sample, which signal is distorted and contains a first order and higher order component signals at first and higher frequencies respectively comprising detecting a frequency characteristic of ultrasonic energy during the first time period to obtain baseline frequency data and detecting the frequency characteristic of the ultrasonic energy reflected by the tissue during the second time period to obtain post-introduction frequency data (see col. 2, lines 31-36), forming an image from one of said higher order component signals of the

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received distorted signal comprising detecting the amplitudes of first and second frequency components (see col. 2, lines 41-48), and displaying said formed image comprising a display of color type and image data representing an image of the tissue derived from the reflected ultrasonic energy (see col. 2, lines 53-55).

6. Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Uhlendorf et al. '516. Uhlendorf et al. disclose an ultrasonic process wherein a material is introduced in the examination area to be acoustically irradiated. With the process, irradiation can be performed with low frequencies, so that a greater penetration depth is obtained and receiving signals of higher frequencies can be evaluated (see col. 2, lines 8-20). Also, Uhlendorf et al. disclose that in improved penetration depth and/or space resolution, which is very advantageous in graphic representation and in Doppler measurements, further results in the evaluation of harmonic signal portions or signals in the upper sideband (see col. 2, lines 64-68).

Allowable Subject Matter

7. Claims 2-11 and 13-22 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick Fields whose telephone number is (703) 305-6933. The examiner can normally be reached on Monday - Friday from 7:00a.m. to 4:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef, can be reached at (703) 308-3256. The fax phone number for this Art Unit is (703) 308-0131.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858.


FRANCIS JAWORSKI
PRIMARY EXAMINER
ART UNIT 335

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May 23, 1997